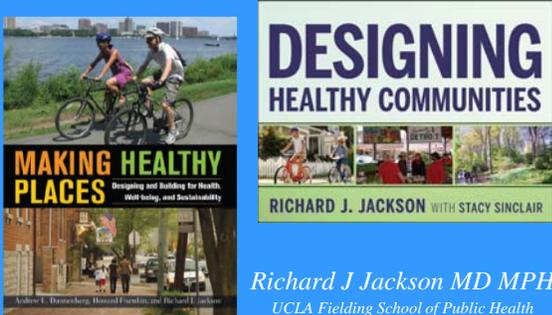


We Are What We Eat and Breathe, and Build:  
Preventing Chronic Diseases and Protecting the Environment by  
Building Healthy Communities



**MAKING HEALTHY PLACES**  
Designing and Building for Health, Well-being, and Sustainability

**DESIGNING HEALTHY COMMUNITIES**

RICHARD J. JACKSON WITH STACY SINCLAIR

*Richard J Jackson MD MPH*  
UCLA Fielding School of Public Health

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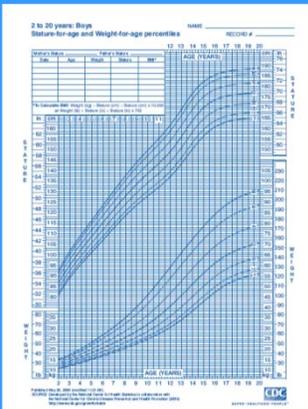
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The  
Check Up  
10 year  
old boy



2 to 20 years: Boys  
Stature-for-age and Weight-for-age percentiles

NAME: \_\_\_\_\_ RECORD # \_\_\_\_\_

AGE (YEARS) 12 13 14 15 16 17 18 19 20

HEIGHT (cm) 128 132 136 140 144 148 152 156 160 164 168 172 176 180 184 188 192 196 200 204 208 212 216 220 224 228 232 236 240 244 248 252 256 260 264 268 272 276 280 284 288 292 296 300 304 308 312 316 320 324 328 332 336 340 344 348 352 356 360 364 368 372 376 380 384 388 392 396 400 404 408 412 416 420 424 428 432 436 440 444 448 452 456 460 464 468 472 476 480 484 488 492 496 500 504 508 512 516 520 524 528 532 536 540 544 548 552 556 560 564 568 572 576 580 584 588 592 596 600 604 608 612 616 620 624 628 632 636 640 644 648 652 656 660 664 668 672 676 680 684 688 692 696 700 704 708 712 716 720 724 728 732 736 740 744 748 752 756 760 764 768 772 776 780 784 788 792 796 800 804 808 812 816 820 824 828 832 836 840 844 848 852 856 860 864 868 872 876 880 884 888 892 896 900 904 908 912 916 920 924 928 932 936 940 944 948 952 956 960 964 968 972 976 980 984 988 992 996 1000

WEIGHT (kg) 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160 162 164 166 168 170 172 174 176 178 180 182 184 186 188 190 192 194 196 198 200 202 204 206 208 210 212 214 216 218 220 222 224 226 228 230 232 234 236 238 240 242 244 246 248 250 252 254 256 258 260 262 264 266 268 270 272 274 276 278 280 282 284 286 288 290 292 294 296 298 300 302 304 306 308 310 312 314 316 318 320 322 324 326 328 330 332 334 336 338 340 342 344 346 348 350 352 354 356 358 360 362 364 366 368 370 372 374 376 378 380 382 384 386 388 390 392 394 396 398 400 402 404 406 408 410 412 414 416 418 420 422 424 426 428 430 432 434 436 438 440 442 444 446 448 450 452 454 456 458 460 462 464 466 468 470 472 474 476 478 480 482 484 486 488 490 492 494 496 498 500 502 504 506 508 510 512 514 516 518 520 522 524 526 528 530 532 534 536 538 540 542 544 546 548 550 552 554 556 558 560 562 564 566 568 570 572 574 576 578 580 582 584 586 588 590 592 594 596 598 600 602 604 606 608 610 612 614 616 618 620 622 624 626 628 630 632 634 636 638 640 642 644 646 648 650 652 654 656 658 660 662 664 666 668 670 672 674 676 678 680 682 684 686 688 690 692 694 696 698 700 702 704 706 708 710 712 714 716 718 720 722 724 726 728 730 732 734 736 738 740 742 744 746 748 750 752 754 756 758 760 762 764 766 768 770 772 774 776 778 780 782 784 786 788 790 792 794 796 798 800 802 804 806 808 810 812 814 816 818 820 822 824 826 828 830 832 834 836 838 840 842 844 846 848 850 852 854 856 858 860 862 864 866 868 870 872 874 876 878 880 882 884 886 888 890 892 894 896 898 900 902 904 906 908 910 912 914 916 918 920 922 924 926 928 930 932 934 936 938 940 942 944 946 948 950 952 954 956 958 960 962 964 966 968 970 972 974 976 978 980 982 984 986 988 990 992 994 996 998 1000

© 2000 U.S. Department of Health and Human Services  
All rights reserved. This chart is for personal use only. No part of this chart may be reproduced without written permission from the U.S. Department of Health and Human Services.  
www.cdc.gov/growthcharts

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“Problem” List

- Physical exam unremarkable
- Ht 54” (50%)
- Wt 115# (95%)
- BP 140/90
- Blood glucose elevated, urine normal
- Cholesterol 220
- Signs of Depression

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### Treatment Plan

- Referral to “overweight” clinic
- Weight loss program
- TV out of the bedroom; no soft drinks in the house
- Exercise program; Encourage sports

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### Two Months Later...



- Lost One pound
- Day is already too full
- Can't change the food at school
- No Time for exercise; “not good at sports”
- No place to Walk

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### 2 months later the patient is taking:



- Antihypertensive medication
- Oral Hypoglycemic agent



- Antidepressant
- Cholesterol-lowering agent



- Monthly medication costs:
  - \$385



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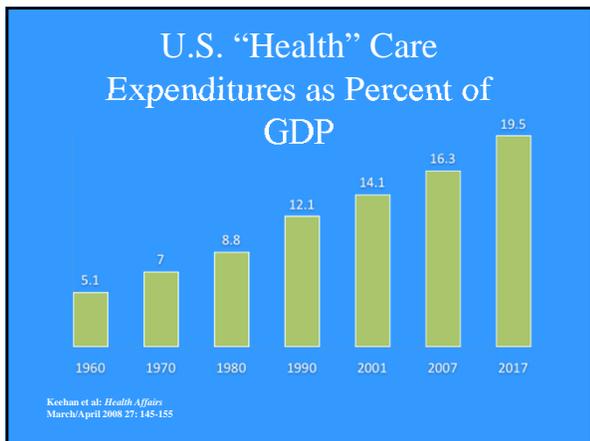
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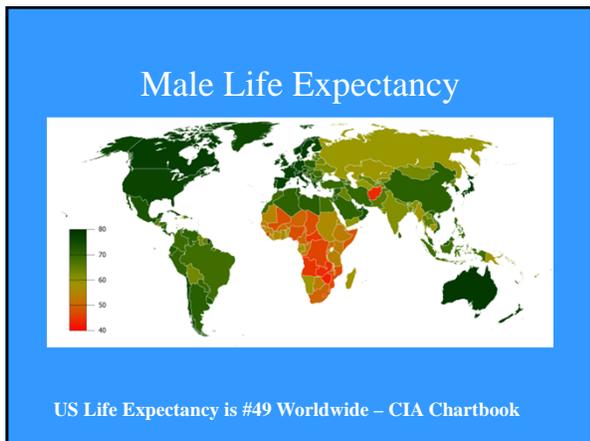
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“Even under the most optimistic estimates, of the 30 years of increased life expectancy achieved between the 1890s and 1990s...”

**How much can be attributed to medical care?**

Bunker cited in *Prescription for a Healthy Nation*, Farley and Cohn 2004

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“...of the 30 years of increased life expectancy 1890 -1990...  
5 years can be attributed to medical care.”

**The rest has come from:**

- Infrastructure (including housing)
- Public Health (esp. immunization)

Bunker cited in *Prescription for a Healthy Nation* Farley and Cohn 2004

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These disorders (and our depletion of land, water, air and economic resources) are shaped by how and where we build our homes, farms, workplaces, towns, cities and societies.



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For 65 years the US affordable housing policy was...  
“Drive until you qualify.”



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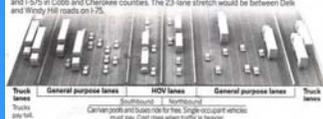
# Will 23 lanes be enough?

Proposal would put I-75 among country's biggest

By ARIEL HART  
ahart@ajc.com

It's wider than an aircraft carrier. Far wider than the carving on Stone Mountain. Wider than the White House stretched end to end, twice. It's the planned I-75, all 23 lanes, coming soon to Cobb County. As currently conceived it's 388 feet across, wider than a football field is long.

**23 LANES:** The state Department of Transportation is planning to expand I-75 (below) and I-85 in Cobb and Cherokee counties. The 23-lane stretch would be between Delk and Windy Hill roads on I-75.



Atlanta Journal-Constitution, March 10, 2006



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We have changed how much we walk or bike

- Percent of children who walk or bike to school:
- 1974 → **66%**
- 2000 → **13%** (CDC, 2000)



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### Fitness of California Children

Annual Fitnessgram Results  
Conducted in Grades 5, 7, and 9  
Measures 6 major fitness areas  
(e.g. aerobic capacity, body composition, flexibility)

2011 Results: Who passed all standards?

Grade 5: 25%  
Grade 7: 32%  
Grade 9: 37%

<http://www.cde.ca.gov/nr/ne/vr11/vr11rel95.asp#tab1>

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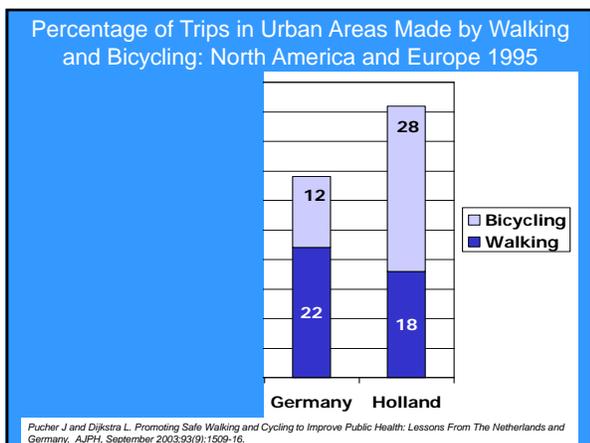
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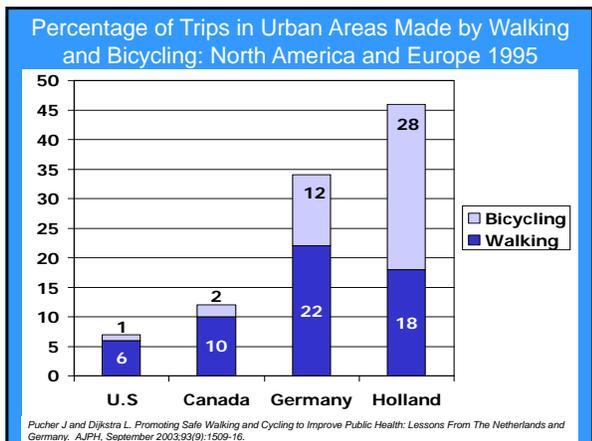
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**BILLBOARDS VS. HEALTH**  
CASE STUDY: SUNSET BLVD (HOLLYWOOD)

BILLBOARD TYPES	
• ALCOHOL:	12
• ENTERTAINMENT:	26
• FOOD:	1
• PRODUCT:	16
• WEIGHTLOSS:	0
• OTHER:	10
<b>TOTAL</b>	<b>65</b>

Theresa Devine & Amy Vetal

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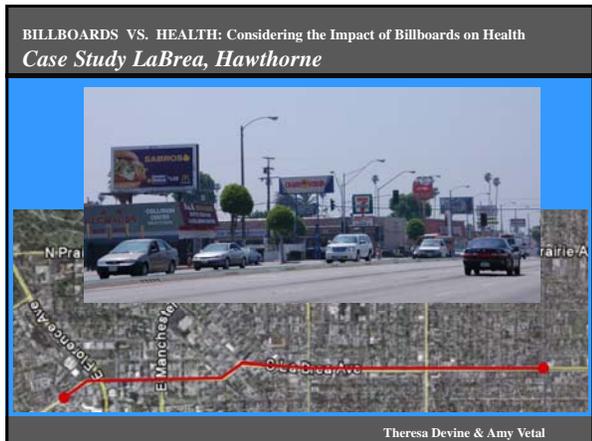
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**BILLBOARDS VS. HEALTH:**  
 CASE STUDY: LA BREA HAWTHORNE)

**BILLBOARD TYPES**

- ALCOHOL: 17
- ENTERTAINMENT: 3
- FOOD: 4
- PRODUCT: 3
- WEIGHTLOSS: 4
- OTHER: 4

**TOTAL 35**

Theresa Devine & Amy Veta

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RANK	Cause and Number of Deaths									
	Under 1	1-3	4-7	8-15	16-20	21-24	25-24	Other Adults		
1	Perinatal Period	Congenital Anomalies	MV Traffic Crashes	MV Traffic Crashes	MV Traffic Crashes	MV Traffic Crashes	MV Traffic Crashes	Malignant Neoplasms	Malignant Neoplasms	
2	Congenital Anomalies	MV Traffic Crashes	Malignant Neoplasms	Malignant Neoplasms	Homicide	Homicide	Suicide	Heart Disease		
3	Heart Disease	Accidental Drowning	Congenital Anomalies	Suicide	Suicide	Suicide	Homicide			
4	Homicide	Homicide	Accidental Drowning	Homicide	Malignant Neoplasms	Accidental Poisoning				
5	Septicemia	Malignant Neoplasms	Exposure to Smoke/Fire	Congenital Anomalies	Accidental Poisoning					
6	Influenza/Pneumonia	Exposure to Smoke/Fire	Homicide	Accidental Drowning						
7	Nephritis/Nephrosis	Heart Disease								
8	MV Traffic Crashes									

**For every age group from 3 through 33-- crashes were the No. 1 cause of death**

nhtsa "People Saving People"

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### Pedestrian Fatality Rates for Collisions at Different Speeds



Zegeer et al 2002

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### “Keeling Curve”

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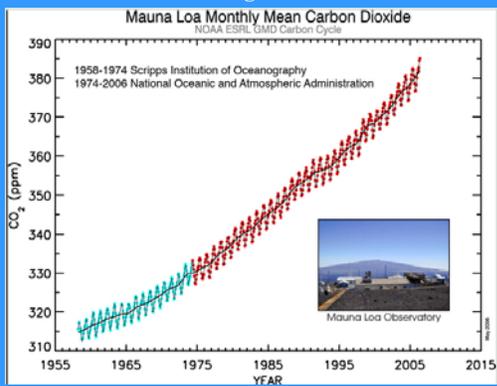
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### “Keeling Curve”



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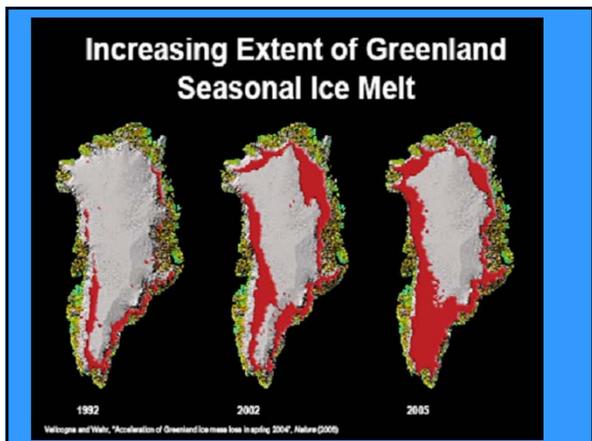
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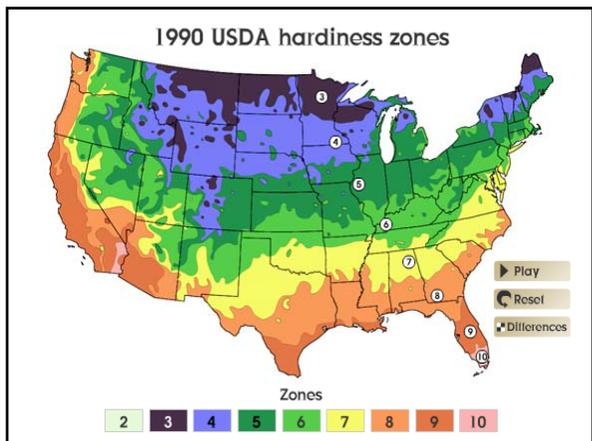
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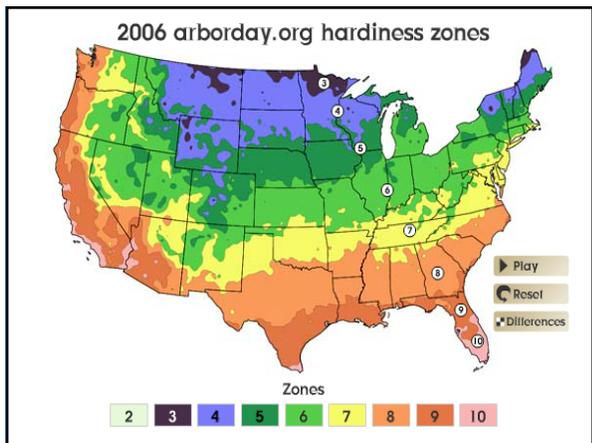
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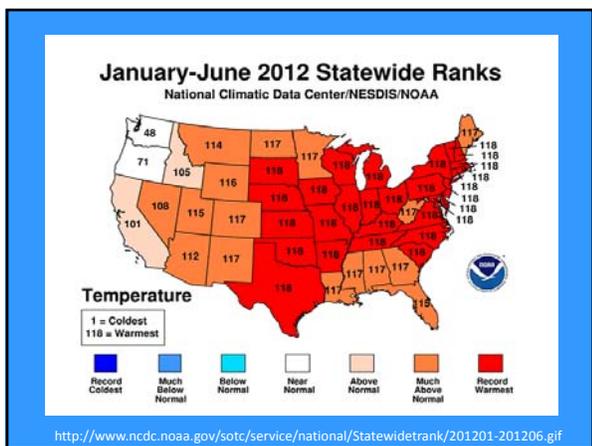
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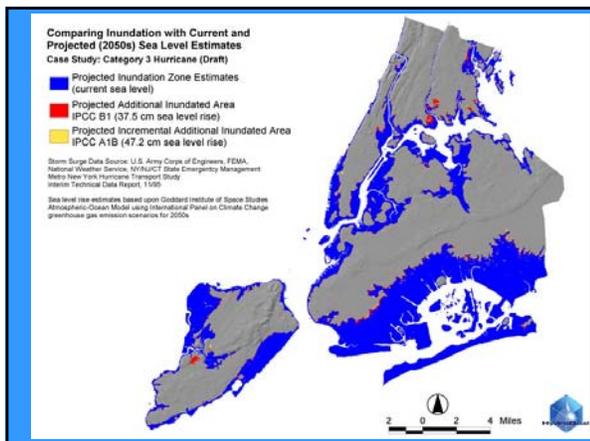
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**GENERAL GORDON B. SULLIVAN, USA (Ret.)**  
*Retired Chief of Staff, US Army*  
*Chairman, Military Advisory Board*

**ADMIRAL FRANK "FRANK" EDWARDS, USN (Ret.)**  
*Retired Director, Naval District, Newport Program*  
*Retired Deputy Administrator, Naval District, Naval District Security Administration*

**LIEUTENANT GENERAL LAWRENCE P. FARRELL JR., USAF (Ret.)**  
*Retired Deputy Chief of Staff for Plans and Programs, Headquarters USAF, Air Force*

**VICE ADMIRAL PAUL D. GIFFIN, USN (Ret.)**  
*Retired Director, Naval District Security Administration, Chief of Naval District and Command, Naval District, Naval District Security Administration*

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*Retired Commanding General, US Army, Military Command*

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*Retired Commander in Chief, US Naval District, Newport Program*

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*Retired Vice Chief of Staff, Operations*

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*Retired Commander in Chief of the US Pacific Command (PACOM) and former US Ambassador to China*

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**GENERAL ANTHONY C. "TONY" BIRMI, USMC (Ret.)**  
*Retired Commander in Chief of US Central Command (CENTCOM)*

**MARK W. GOODMAN**  
*Executive Director, Military Advisory Board*  
*The OCSA Corporation*

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Preventing Chronic Diseases Will  
 Be Very Challenging--  
 The Overweight and Obesity  
 Epidemics

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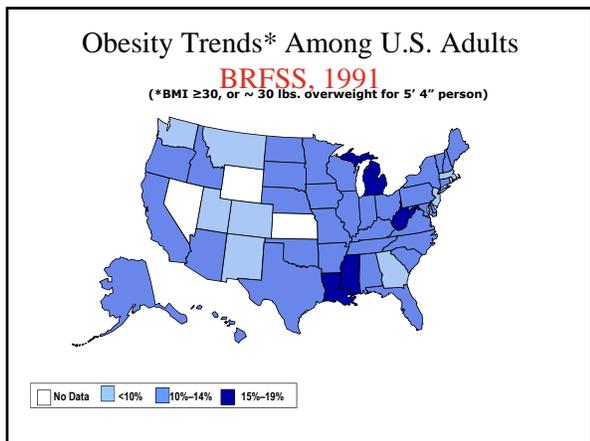
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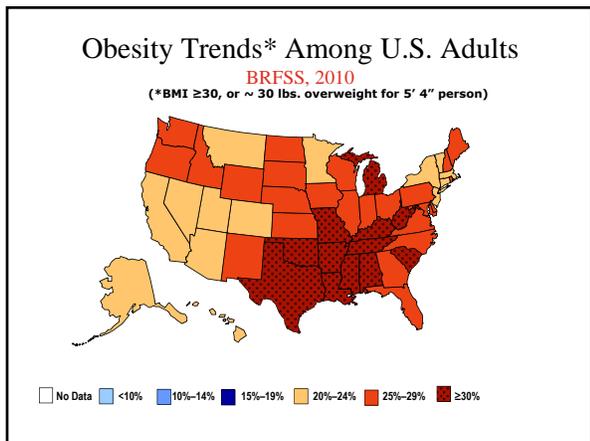
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- ...by 2030 obesity rates will rise to 42%
- The US will need to care for ... 32 million more obese people than in 2010.

Forecast:  
by 2030 the prevalence of the US population with a BMI over 40 (~100 pounds overweight) will be 11%

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**Obesity in Young Is Seen as Falling in Several Cities**



Alli Wilson H. Ziegler Elementary in Northeast Philadelphia, students are getting accustomed with vegetables and healthy snacks.

Source: Courteney for The New York Times

By **SARAH TAVERNESE**  
 Published: December 10, 2012 | 523 Comments

**PHILADELPHIA** — After decades of rising childhood obesity rates, several American cities are reporting their first declines.

The trend has emerged in big cities like New York and Los Angeles, as well as smaller places like Anchorage, Alaska, and Kearney, Neb. The state of Mississippi has also registered a drop, but only among white students.

Multimedia

FACEBOOK  
 TWITTER  
 GOOGLE+  
 SAVE  
 EMAIL  
 SHARE  
 PRINT

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Place	Age	Time 1	Obesity Rate at Time 1	Time 2	Obesity Rate at Time 2	Percent Decline
Philadelphia	K-12	2006-07 school year	21.5%	2009-10 school year	20.5%	-4.7%
New York City	K-8	2006-07 school year	21.9%	2010-11 school year	20.7%	-5.5%
Mississippi	K-5	Spring 2005	43%†	Spring 2011	37.3%†	-13.3%
California	Grades 5, 7, 9	2005‡	38.44%†	2010‡	38%†	-1.1%

† Combined rates of overweight and obesity  
‡ Data calculated from the 2005 and 2010 California Physical Fitness Test, California Department of Education

[http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2012/rwjf401163](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2012/rwjf401163)

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**Hardee's introduces new Mega-Calorie "Monster Thickburger"**



- 1,420 calories
- 107 grams of fat
- 7.1 hours of moderate walking

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### Fast Food Restaurants

- “black/low income” neighborhoods ~ **2.4 per sq. mile**
- “white” neighborhoods: **1.5 per sq. mile**




American Journal of Preventive Medicine, October 2004

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### “Supersizing” a fast-food meal – the real costs

- Paying 67 cents to supersize an order — 73 percent more calories for 17 percent more money — adds an average of 36 grams of adipose tissue. The future medical costs for that bargain would be \$6.64 for an obese man and \$3.46 for an obese woman.

University of Wisconsin-Madison, Rachel N. Close and Dale A. Schoeller

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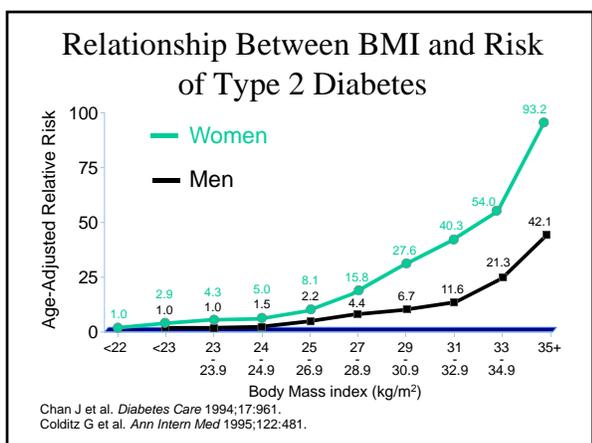
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# Solutions

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# Institute of Medicine

*The purpose of public health is to fulfill society's interest in assuring the conditions in which people can be healthy*

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**Farmers' Markets and Urban Agriculture**

**FARM BUREAU SAN DIEGO COUNTY**

**Certified Farmers' Markets**

Helping you find the best products for your business. We offer a variety of products for your business. We offer a variety of products for your business. We offer a variety of products for your business.

**SAGE SUSTAINABLE AGRICULTURE EDUCATION**

Helping you find the best products for your business. We offer a variety of products for your business. We offer a variety of products for your business.

**Linking Our Food, Farms & Future**

Helping you find the best products for your business. We offer a variety of products for your business. We offer a variety of products for your business.

**NEWS**

Helping you find the best products for your business. We offer a variety of products for your business. We offer a variety of products for your business.

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### Sugar Sweetened Beverage (SSB) Tax Likely Results

- “A national tax of 1 cent per ounce on sugar-sweetened beverages (SSBs) would decrease consumption by 23% and raise \$14.9 billion in the first year alone.”



Brownell KD, et al. The public health and economic benefits of taxing sugar-sweetened beverages. NEJM. 2009;361(16):1599-1605.

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- Always good, but especially as we age, what is the best exercise?

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### Walking 10,000 steps



- 3234 people with “Pre-Diabetes”
- Walked or exercised five times a week for 30 minutes for 6 months
- lost 5% to 7% of their body weight
- reduced their risk of diabetes by 58%

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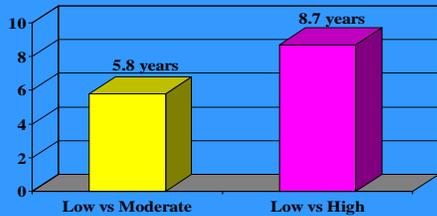
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### Gain in Longevity for a 45-Year Old Male

Years of added life



Additional years of Life:

Moving from Low to Moderate Fitness -- 5.8 years  
From Low to High -- 8.7 years.

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**Institute of Medicine**  
Report  
*Accelerating Progress in Obesity Prevention*  
2012

**Goal 1: Make physical activity an integral and routine part of life.**

**Recommendation 1:** Communities, transportation officials, community planners, health professionals, and governments should make promotion of physical activity a priority by substantially increasing access to places and opportunities for such activity.

**Strategy 1-1: Enhance the physical and built environment.**

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## Complete Streets Bring Equity to Community and Transportation

- Complete Streets
  - social equity, aesthetics, walking, improved local sales, community building



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## NYC Active Design Guidelines

- Resilient Bldgs
- Energy Efficient Buildings
- Healthy Bldgs
- Smart zoning and locations



[http://www.nyc.gov/html/ddc/html/design/active\\_design.shtml](http://www.nyc.gov/html/ddc/html/design/active_design.shtml)

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## The Manhattan Waterfront Greenway

32-mile long walking and bicycling path around the island of Manhattan. The majority of the Manhattan Waterfront Greenway is physically separated from auto traffic



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Charlotte, NC, Light Rail Opened  
November, 2007



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The Effect of Light Rail Transit on  
Body Mass Index and  
Physical Activity

John M. MacDonald, PhD, Robert J. Stokes, PhD, Deborah A. Cohen, MD, MPH,  
Aeron Kofner, MS, Greg K. Ridgeway, PhD

- Significant increase in meeting the weekly Recommended Physical Activity
- ... through walking (OR1.09)
- ...and through vigorous exercise (OR1.11)

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- The use of Light Rail Transit to commute to work was associated with an average reduction of 1.18 BMI points ( $p < 0.05$ ) and 81% reduced odds of becoming obese over time.
- For a person who is 5'5" --equivalent to a relative weight loss of 6.45 lbs.

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## In 2009 in the US

2,953,501 million  
vehicle miles traveled  
33,808 people  
died in motor vehicle traffic crashes

One death per 87 million miles driven

- <http://www.fhwa.dot.gov/policyinformation/statistics/2009/vm1.cfm>
- <http://www.nrd.nhtsa.dot.gov/Pubs/811363.PDF>

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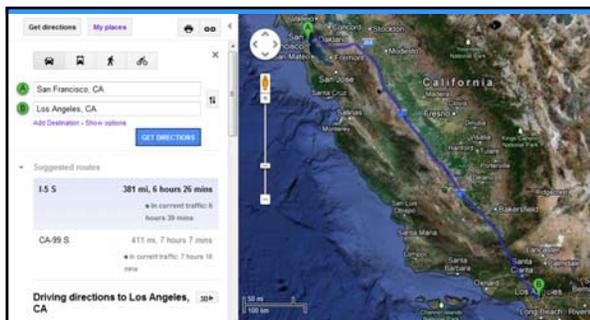
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381 miles = 4.4 chances in a million or a  
One in 228,000 chance of death

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### High Speed Rail: CHINA

China has become the global leader in HSR and is looking to extend the network to Europe, the UK and Southeast Asia.

[http://en.ce.cn/Industries/Transport/200909/28/20090928\\_20114932.shtml](http://en.ce.cn/Industries/Transport/200909/28/20090928_20114932.shtml)  
<http://www.avbuyer.com.cn/evpictures/slideshow.asp?newsid=38715> <http://www.impactlab.net/2009/12/27/china-unveils-worlds-fastest-high-speed-rail/>

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Two Police "vehicle" parked during lunch

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- Segway Personal Transporter
  - \$5000 and up
  - "burn" about ~200 kcal/hr
- Cost of Police Mountain Bike
  - \$700-1000
  - ~ 650/kcal/hr

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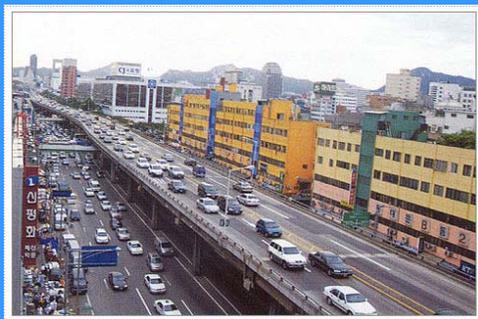
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• The Chenoggye freeway ran through the center of Seoul ~1970-2005

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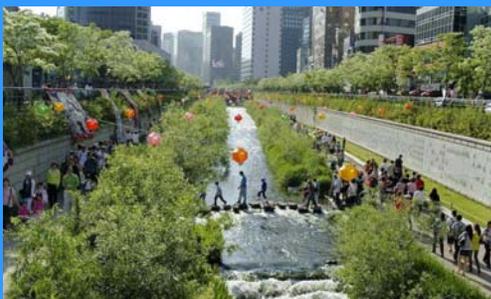
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- Cheonggyecheon -- 8.4 km long downtown Seoul, South Korea.
  - The \$900 million project initially attracted much public criticism.

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- The shelf life of human beings is short.
- Educate future leaders!

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### APHA National Meeting 2002-2003 Abstracts with "land use" - 0

2002

2003



A Big Shift in Public Health's Awareness of Built Environment as a Core Determinant of Health

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Our patient starts to walk or bicycle to school 1 mile 4 days per week

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- The family car ran 1280 less miles
- 64 fewer gallons of gasoline burned
- \$704 Saved
- Made new friends and was learning better

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The New “Active” Commuter

- 30 minute walk or bicycle trip burns 125 calories each way (for a 130 pound child)
- 4 days per week = 1000 calories per week, 40,000 calories for school year.
- Converts to 11.5 pounds of body fat.

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The New walk/bike Student  
Two year follow up (age 12)

- Height – 59” (50%ile)
- Weight – 110# (65%ile)
- BP - 130/78
- Blood sugar – Normal
- Cholesterol – 175
- Energy level and Mood - Good

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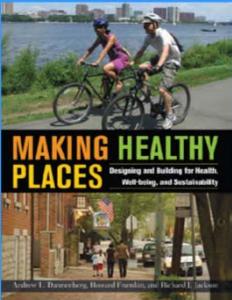
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We Are What We Eat, and...  
We Are What We Build!




**MAKING HEALTHY PLACES**  
Developing and Building for Health, Well-being, and Sustainability

**DESIGNING HEALTHY COMMUNITIES**

RICHARD J. JACKSON WITH STACY SINCLAIR

Richard J Jackson MD MPH  
[dickjackson@ph.ucla.edu](mailto:dickjackson@ph.ucla.edu)

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**DESIGNING HEALTHY COMMUNITIES**  
The 2012 PBS 4-Part Series

Dr. Richard Jackson, former head of Environmental Public Health for the Centers for Disease Control, explains the link between health and the way our communities – especially our suburbs – are designed. Obesity, asthma, diabetes and heart disease are aggravated by the auto-centric way we live today. It's no secret that today's young people are likely to have shorter lives than their parents due to unhealthy lifestyles. It doesn't have to be this way. Well-designed communities can improve both physical and mental health.




**Special Offer, courtesy of the Fund for the Environment & Urban Life:**

Purchase the Complete *Designing Healthy Communities* Series (4 DVDs, 1 hour each, plus 4 bonus videos) to share with colleagues. Normally \$99, the series is available at \$29.

For this special offer, visit:  
[www.DesigningHealthyCommunities.org/oram](http://www.DesigningHealthyCommunities.org/oram)  
Limited supply available at discount. \$2.95 add'l.

Fund for the Environment & Urban Life  
mpc

<http://designinghealthycommunities.org/oram/>

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